UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,618	06/26/2001	Frederic Gagnon	051481-5071	8348

9629 7590 01/02/2003

MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER
KRISHNAMURTHY, RAMESH

ART UNIT	PAPER NUMBER
3753	

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/888,618	GAGNON, FREDERIC	
	Examiner	Art Unit	
	Ramesh Krishnamurthy	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 13 and 15 - 18* is/are rejected.

7)☒ Claim(s) *14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

This office action is responsive to communications filed 10/09/2001.

Claims 1 – 18 are pending.

NOTE: The line numbers in the claim referred to in the office action pertain to the position of the line within the claim and not to the position of the line in the page.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 – 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "a seat portion between one channel of the at least two channels" in line 6. This limitation is incomplete rendering the claim indefinite.

Claim 1 recites the limitation "air flow between each channel to the inlet" in lines 10 and 11. This limitation is confusing in that airflow takes place from the inlet to the channels and not the other way around.

Claim 6 recites the limitation "wherein each of the at least two channels further comprises an inlet portion disposed along the first axis" in lines 1 and 2. This is in conflict with the specification (page 4, lines 2 - 4 of paragraph 0014) and with Fig. 1.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 5 – 9, 13 and15, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by de Versterre et al..

The patent to de Versterre et al. discloses (Figs. 1 – 5) a flow controller valve comprising:

An inlet (14) disposed along a first axis;

At least two channels ((23) in each module (11)) in communication with the inlet (14), the at least two channels ((23) in each module (11)) disposed along a second axis;

At least one mass sensor (77) disposed proximate at least one (23) of the at least two channels;

A seat portion (40) disposed between the inlet (14) and one channel (23) of the at least two channels;

At least two closure members (32) (one in each module (10, 11)), one of the at least two closure members disposed proximate one channel (23) of the at least two channels, the other ((32) in the adjacent module (10,11)) of the at least two closure members disposed proximate the other channel ((23) in the adjacent module (11)) of the at least two channels, each closure member movable to a plurality of positions, a first position permitting fluid flow between inlet and each channel and a second position preventing such flow (Col. 4, lines 4 – 16); and

At least two actuators ((57-70) in each module (10)) coupled to a respective one (32) of the at least two closure members, the at least two actuators responsive (via (54) – the chassis module of electronic components, see Fig. 5) to one of the mass sensors

(77) in each channel of the at least two channels to move a respective one of the at least two closure members between the first and the second position.

It is noted that the illustrative example disclosed in de Versterre et al. pertains to using the valve with a liquid but the valve is usable with any fluid including air. The recitation of "fuel cells" in the preamble of claim 1 pertains to intended use of the device claimed and as such is not given any patentable weight in this office action.

Regarding claim 2, it is noted that the valve seat (40) is annular in nature and is disposed relative to a third axis that is transverse to the first axis (of channel (14)) and the second axis (of channel (23)).

Regarding claim 5, it is noted that the closure member (32) does move along the third axis between first and second positions (Fig. 4 and Col. 4, lines 4 – 16).

Regarding claim 6, it is noted that each (23) of the at least two channels comprises an inlet portion (near seat (40)) that is transverse to the first axis and an outlet portion (near (22)) that is disposed along a fourth axis, that is spaced from the first axis by a distance, the distance containing the seat portion (40).

Regarding claim 7, it is noted that the seat portion (40) has a seating surface which the closure member contacts (Fig. 4) in a closed position thereby forming a seal.

Regarding claim 8, it is noted that the actuator (57 – 70) comprises (Fig. 4) a sliding bearing (79), the sliding bearing configured to permit the closure member to reciprocate between the first and second positions.

Regarding claim 9, it is noted that the actuator (57 – 70) comprises a housing (See fig. 4) (50, 18, 19) the housing having a first wall (a portion of (50) and the

corresponding part of (11)) and second wall (the right descending wall portion of (50) near (51)) along the third axis, a third wall (41) disposed along the first axis, a fourth wall (18) along the fourth axis, the first and the third walls formed as part of the inlet portion and the second and the fourth walls formed as part of the outlet portion.

Regarding the method claims 13, 15, 16 and 18, it is noted that these claims are anticipated by the apparatus disclosed by de Versterre et al. since the apparatus would necessarily perform the claimed method in its normal and usual operation.

It is noted that the steps of determining a desired fluid flow and the metering step recited in claim13 are disclosed in Col. 6, lines 5 – 14.

Regarding claim 15, it is noted that the sensing step is disclosed in Col. 6, lines 11 – 14.

Regarding claim 16, it is noted that the modulating step is disclosed in Col. 5, 62 – Col. 6, line 4.

Regarding claim 18, it is noted that Fig. 5 together with the description in Col. 5, line 46 – Col. 6, line 26 anticipates the recited limitation.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 10 – 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Versterre et al. as applied to claims 1, 2, 5 – 9, 13 and15, 16 and 18, above.

Regarding claims 10 and 11, it is noted that de Versterre et al. discloses a sensor cap (38) that houses the various electrical connections associated with the actuator. At the time the invention was made it would have been a matter of obvious design choice to a person ordinary skill in the art to place the sensor cap configured to couple with the first and second walls of the actuator because the applicant has not disclosed that such a placement provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the applicant's invention to perform equally well with the sensor cap placed as in the device of de Versterre et al. since a mere change in the position of the sensor cap would not alter the functioning of the device of either the applicant or that of de Versterre et al..

Regarding claim 12, it is noted that in de Versterre et al. the first and third walls of each actuator is parallel to the corresponding walls of the other actuator of the at least two actuators. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to orient the actuators such that the first and third walls of each actuator is orthogonal to the corresponding walls of the other actuator of the at least two actuators because the applicant has not disclosed that such a placement provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the applicant's invention to perform equally well with the actuators placed as in the device of de Versterre et al. since a mere change in the position of the other of the at least two actuators in relation to one actuator would not alter the functioning of the device of the applicant.

Regarding claim 17, it is noted that use of a pulse width modulation (PWM) is a well-known technique in the art of solenoid driven valves and since in the device of de Versterre et al. the solenoid driven valve (32) has to be modulated in response to the comparison between the sensed flow and the desired flow, one of ordinary skill in the art at the time the invention was made would have been motivated to use a well-established technique such as that of pulse width modulation to modulate the movement of the closure member (32).

7. Claims 3 and 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Claim14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither shows nor teaches a combination for the claimed flow controller that comprises in combination with the other recited elements, (a) an inlet further comprising a portion having a first cross-sectional area and a second cross sectional area proximate the at least two channels, the second cross sectional area being greater than the first cross sectional area or (b) an air mass sensor comprising a pressure sensor disposed in the inlet and a position sensor that senses the position of the actuator.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eidsmore et al. discloses a process gas flow control module. Hartle et al. discloses an air regulator system that a single inlet with plural valved outlets. Hirota discloses a fuel cell power generation system. Merritt et al. discloses a reactant supply control system for a fuel cell. Moriya et al. discloses a processing apparatus using gas. Nishino et al. discloses a pressure type flow control apparatus. Myer, Jr. et al. discloses a fuel flow control system. Hollister discloses an apparatus for controlling the flow of fluids. Peschke et al. discloses a flow control system for a fuel cell.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (703) 305 - 5295. The examiner can normally be reached on Monday - Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Buiz, can be reached on (703) 308 - 0871. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 - 7765.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0861.

Ramesh Krishnamurthy
Examiner
Art Unit 3753
December 30, 2002